

REMARKS

Summary of Amendments

Upon entry of the foregoing amendments, claims 1-102 are cancelled and claims 103-204 are added, whereby claims 103-204 will be pending, with claims 103, 137, 156, 181, 194, 198 and 201 being independent claims. Support for the new claims can be found throughout the present specification and the cancelled claims (see, e.g., claims 1-69).

Applicants emphasize that the cancellation of claims 1-102 is without prejudice or disclaimer, and Applicants expressly reserve the right to prosecute these claims in one or more continuation and/or divisional applications.

Summary of Office Action

As an initial matter, Applicants note with appreciation that the Examiner has indicated consideration of the Information Disclosure Statements filed August 17, 2004, January 11, 2006 and January 12, 2007 by returning signed and initialed copies of the Forms PTO-1449 submitted therein. In this regard, it is noted that a further Information Disclosure Statement is being filed concurrently herewith and the Examiner is respectfully requested to indicate consideration thereof by returning a signed and initialed copy of the form PTO-1449 submitted therein with the next official communication.

The restriction and election of species requirements are made final and claims 30-68 and 70-102 are withdrawn from consideration.

The drawings are objected to as allegedly failing to comply with 37 CFR 1.84(p)(5).

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Claims 1, 2 and 69 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Kamo et al., US 2003/0059660 (hereafter “KAMO”).

Claims 3-5, 7 and 15 are rejected under 35 U.S.C. § 102(e)/103(a) as allegedly being unpatentable over KAMO.

Claim 6 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over KAMO in view of U.S. Patent No. 5,112,941 to Kasai et al. (hereafter “KASAI”).

Claims 8, 9 and 16-19 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over KAMO and further in view of U.S. Patent No. 3,911,080 to Mehl et al. (hereafter “MEHL”).

Claims 10-14 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over KAMO in view of KASAI and further in view of U.S. Patent No. 5,856,246 to Witzko et al. (hereafter “WITZKO”).

Claim 20 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over KAMO and further in view of U.S. Patent No. 4,583,996 to Sakata et al. (hereafter “SAKATA”).

Claim 21 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over KAMO in view of MEHL and further in view of Welker, US 2004/0083891 (hereafter “WELKER”).

Claims 22-29 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over KAMO in view of MEHL and further in view of WITZKO.

Response to Office Action

Reconsideration and withdrawal of the objections and rejections of record are respectfully requested in view of the foregoing amendments and the following remarks.

Response to Objection to Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they allegedly do not include reference numbers mentioned in the description, but instead include letters.

Applicants respectfully traverse this rejection. While it is not known to Applicants which other reference numbers the Examiner may be referring to, it is submitted that at least the reference numbers mentioned in paragraphs [0108] and [0110] of the present specification are included in Fig. 7 and Fig. 9, respectively.

In view of the foregoing, it is submitted that the present objection to the drawings appears to be unwarranted and should be withdrawn, which action is respectfully requested.

Response to Rejection under 35 U.S.C. § 102(e)

Claims 1, 2 and 69 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by KAMO. The rejection alleges that KAMO teaches a fuel cell having vent holes on the outer container, which vent holes allow for the escape of gas formed during the operation of the fuel cell and further alleges that vent holes contain a porous gas/liquid separation membrane that is permeable to gas but impermeable to liquid and may be made of polytetrafluoroethylene.

Applicants respectfully disagree with the Examiner in this regard. At any rate, KAMO clearly fails to anticipate any of the present claims. For example, KAMO fails to disclose a membrane with a (any) coating thereon and also fails to disclose, *inter alia*, a protective element as recited in present independent claim 156.

Further, all of the present claims recite that the fuel cell is suitable for use with a hydride-

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based fuel, while it is not known whether the fuel cell of KAMO would be suitable for use with a hydride-based fuel.

Applicants submit that for at least all of the foregoing reasons, withdrawal of the rejection under 35 U.S.C. § 102(e) over KAMO is warranted and respectfully requested.

Response to Rejection under 35 U.S.C. § 103(a) over KAMO, KASAI and WITZKO

Claims 10-14 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over KAMO in view of KASAI and further in view of WITZKO. The rejection concedes that KAMO in view of KASAI fails to teach a coating on the vent hole membrane of the fuel container of KAMO but essentially alleges that WITZKO teaches a thin film hydrophobic polymer membrane with a surface coating of the claimed type wherefore it would allegedly have been obvious to one of ordinary skill in the art to use the coating of WITZKO on the membrane of KAMO in view of KASAI since the coating allegedly provides good chemical and mechanical stability and a permanent finish.

This rejection is respectfully traversed. In particular, there is no apparent reason (motivation) for one of ordinary skill in the art for applying a coating on the membrane used in the air vent hole of the fuel container of KAMO. The material used for the membrane, i.e., polytetrafluoroethylene (PTFE), is known to be able to withstand prolonged contact with many chemicals, which is one of the reasons why PTFE is frequently used for contact with aggressive/corrosive environments.

Further, the chemicals which are contained in the fuel container of KAMO, i.e., water and methanol, are by no means aggressive and/or corrosive chemicals which one of ordinary skill in thea

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art would expect to chemically attack the PTFE membrane of KAMO, and neither does KAMO contain any suggestion to the effect that it would be desirable to protect the PTFE membrane from the “attack” by water and methanol. In this regard, it is further noted that the fuel of KAMO consists predominantly of water. For example, according to paragraph [0104] of KAMO, the fuel container was filled with a 10 % by weight aqueous methanol solution. A corresponding solution would likely be harmless to any material, be it a polymer or an inorganic material, which is suitable for making a membrane, i.e., not just to PTFE. In addition, a 10 % by weight aqueous methanol solution would not wet out even standard PTFE, wherefore a coating would clearly serve no useful purpose with the fuel of KAMO.

Regarding WITZKO, it is noted that this document states in col. 3, lines 4-9 and col. 4, lines 23-31 (emphases added):

Uses of the claimed modification to coat fibers or textile materials and to form membranes are also provided. These modified membranes and textiles may be used primarily in the microfiltration area (such as in the protection of electronic parts from penetration by oil and water) and in the fabrics area.

The modification according to the invention can be used for a number of polymer substrates with negative zeta potential. These include fibers, flat textile articles and also membrane materials. These fibers or textile flat products include both synthetic and natural polymer starting materials. The natural starting materials include, in particular, cellulose, cotton, wool or silk. Mixtures of synthetic and natural polymer starting materials can also be used. Detachment of layers is reduced to a minimum as a result of the complex stability.

It is not seen that the above statements, while referring, *inter alia*, to membranes, are able to provide a motivation for one of ordinary skill in the art to coat the vent hole membrane of KAMO.

Applicants note that the rejection appears to predominantly rely on col. 2, lines 11-15 of WITZKO where it is stated:

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There is a need for an improved permanent hydrophobic finish that can be produced using limited amounts for coating forming monolayers or limited multilayers having good chemical and mechanical stability even in the presence of aqueous or aqueous-alcoholic solutions.

Applicants respectfully submit that the above passage merely sets forth that there is a need for a material with certain properties. Moreover, even if one were to assume, *arguendo*, that the coating of WITZKO provides a good chemical and mechanical stability in the presence of aqueous or aqueous-alcoholic solutions, it is pointed out that these properties are inherent in the PTFE membrane of KAMO, wherefore a corresponding coating on the membrane of KAMO would not appear to provide any advantage. In this regard, it is noted that the materials which are employed for coating in the numerous Examples of WITZKO do not include any membranes, nor do they include materials made from PTFE or a similar polymeric substance.

Further, regarding the comments at page 8 of the present Office Action with respect to rejected claims 10-14 and col. 2, lines 40-44 of WITZKO, Applicants submit that claim 11, for example, recites that the coating comprises a polymer with repeating units which comprise a fluorinated aliphatic group having at least about 5 fluorine atoms (see also, e.g., claims 115, 142, 176 and 190 submitted herewith). In contrast, the (optionally fluorine containing) long chain surfactant of WITZKO which may optionally be employed in combination with the water-soluble polycation and/or cationic synthetic resin thereof (see, e.g., col. 2, lines 19-24 of WITZKO) is a monomeric compound (perfluoro carboxylic acid or perfluorosulfonic acid), i.e., not a polymer, let alone a polymer with repeating units which comprise a fluorinated aliphatic group.

Accordingly, even a combination of the teachings of KAMO/KASAI and WITZKO would not result in the subject matter of the corresponding claims. In this regard, it is further pointed out

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that in the only Examples of WITZKO in which fluorine containing coatings are described, i.e., Examples 7 and 8, the coated materials are polyester and polyamide fabrics, i.e., materials which have nothing in common with PTFE.

Applicants submit that for at least all of the foregoing reasons, KAMO/KASAI in view of WITZKO fail to render it obvious to provide the vent hole membrane of KAMO with a coating. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) over KAMO in view of KASAI and further in view of WITZKO is warranted and respectfully requested.

Response to Additional Rejections under 35 U.S.C. § 103(a)

Applicants note that all of independent claims 103, 137, 181, 194, 198 and 201 recite that a membrane which seals the at least one opening of the claimed fuel cell is coated. The only document which is cited in the present Office Action and mentions the coating of membranes appears to be WITZKO. As set forth above, KAMO/KASAI in view of WITZKO fail to render it obvious to provide the vent hole membrane of KAMO with a coating and thereby also fail to render obvious the subject matter of present independent claims 103, 137, 181, 194, 198 and 201 (and the claims dependent therefrom).

The only independent claim which does not mention a coating, i.e., claim 156, recites that a protective element which protects the opening-sealing membrane from a physical and/or chemical attack by the fuel and its decomposition and reaction products is present on at least a side of the membrane which faces the interior of the fuel cell. None of KAMO, KASAI, WITZKO, MEHL, SAKATA and WELKER appears to teach or suggest such a protective element, and for this reason

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alone, none of these documents is able to render obvious the subject matter of independent claim 156 and the claims dependent therefrom.

In view of the foregoing, there is no need to comment on the remaining allegations set forth in the present Office Action. It is pointed out however, that Applicants' silence in this regard is by no means to be construed as admission that any of these allegations is meritorious.

Applicant submit that for at least all of the reasons set forth above, the rejections under 35 U.S.C. § 103(a) over KAMO/KASAI in view of any of WITZKO, MEHL, SAKATA and WELKER and combinations thereof are without merit, wherefore withdrawal thereof is respectfully requested.

CONCLUSION

In view of the foregoing, it is believed that all of the claims in this application are in condition for allowance, which action is respectfully requested. If any issues yet remain which can be resolved by a telephone conference, the Examiner is respectfully invited to contact the undersigned at the telephone number below.

Respectfully submitted,
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